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The American Cinematographer

The Voice of the Motion Picture Cameramen of America, the men who make the pictures

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Table of Contents

FOR

SEPTEMBER

	Page
Attempts to Control Double Exposure Method	4
Modern Lenses, Section Five, The Newer Lenses—By KARL BROWN, A. S. C.	5
Scenarist and Cinematographer—By JUNE MATHIS	6
An Analysis of the Film Industry in Italy—By CHAS. ROSHER, A. S. C.	7
The Editors' Corner—Conducted by FOSTER GOSS	10
Can the Movies Teach? First Installment—By ROWLAND ROGERS	12
Photography in Cartoons	13
Artificial Lighting of Motion Picture Studios—By DR. ALFRED B. HITCHINS	14
Projectionist and Cinematographer—By F. H. RICHARDSON	15
Thos. A. Edison Becomes Honorary Member of A. S. C.	16
Double Exposures of the Early Days—By OTTO BRAUTIGAM	16
Jimmy, the Assistant, On Art and Business	17
In Cameraformia	25
Releases	26

An educational and instructive publication espousing progress and art in motion picture photography with fostering the industry.

We cordially invite news articles along instructive and constructive lines of motion picture photography from our members and others active in the motion picture industry. All articles must be signed by name and address of writer.

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Attempts to Control Double Exposure Method

Those connected with motion picture production will observe with interest the progress of the legal action resulting from efforts of Norman Dawn, a director, to obtain an injunction against Rubaiyat Inc., and Ferdinand Earle, as co-defendants, seeking to prevent the use of that form of double exposure in which an artificial scene is blended with a natural scene, in the production, "The Rubaiyat of Omar Khayyam," produced by Earle.

The affair is assuming the proportions of a test case since, it is understood, that Mack Sennett, Thomas H. Ince, Mary Pickford, Douglas Fairbanks, the Paramount organization, as well as other outfits have pledged their support to Earle in his endeavor to prevent Dawn from securing the injunction. Dawn's basis for action is a United States patent, which was granted in June, 1918, and which he claims gives him the control of the aforementioned form of double exposure. The case will come to trial in the Federal court, Los Angeles, on October 3rd.

On the face of things, it appears as if Dawn will experience not a little difficulty in exercising his patent, since the method which he seeks to control was, as research will show, in general usage prior to June, 1918, when his patent was granted. If Dawn is successful in his legal action, then virtually every motion picture producing organization will be placed in a position wherein they will have to forego the application of the method of double exposure in question or pay Dawn for the privilege of its use. As this form of double exposure is being extensively employed at present by virtually every producing organization, a most important part of cinema production would be placed in the control of one individual to be disposed of as he sees fit.

No one, who has the interest of the cinema art at heart, desires that conditions be brought about in the slightest way similar to those in vogue during the regime of the Motion Pictures Patent Company whose activities sapped at the early growth of the industry.

Had Dawn invented any particular instrument or device for the production of the contested form of double exposure, his desire to obtain a patent on such would be readily appreciable. But since he has merely succeeded in gaining a patent on an idea which even the real cinema pioneers—who include a substantial majority of the recognized cinematographers of today—considered long before 1918 as being common property of the motion picture industry, it is difficult to predict success for Dawn in his present legal action.

Modern Lenses

The Newer Lenses

By Karl Brown, A. S. C.

Section Five

Soft focus photography in cinematography as yet remains a difficult problem. True, there are several ways of obtaining a soft image, and certainly some very beautiful work of this type has been done, yet it is a fact that the means employed are more or less uncertain, and except in the hands of one very experienced actually dangerous for the reason, at least one large studio has forbidden the use of this most valuable phase of photography.

The main difficulty encountered in the use of gauze, diffuser screens, soft lenses, etc., is the obviousness of the softness. The slightest halo, or "runaround," or "soft" life is enough to ruin an otherwise beautiful scene, and the fact that soft image scenes must necessarily be seen in contrast to anastigmatic sharp scenes explains this.

For this reason, the usual device employed for soft image work is fine gauze, thinned to the desired weight by passing some of the threads. But even this does not solve the problem, because the thinness of gauze will let a highlight, and the whole result falls far short of the image quality obtained by the masters of pictorial work. The single lens, a dangerous but splendid tool is robbed of its real usefulness in motion picture work by the fault of being practical only at relatively large apertures, a fault common with soft focus lenses of all ages so far presented.

Many Difficulties

The Graf Optical Company of South Bend, Indiana, a firm so new as to be unknown to most of the readers, has produced a lens known as the Graf Variable, which represents a laudable effort to solve the problem of the soft image. Soft image work in portraiture has many difficulties in common with similar motion picture work of the variable, first produced in large sizes for portraiture, seemed to be so satisfactory an answer to the soft image problem as to justify its production in motion picture size.

The Graf Variable is an anastigmatically corrected lens, producing an image in every respect equal to any other anastigmat, with an adjustment by the use of which any amount of softness may be given the image without loss of focus or structure. The advantages of such an objective is obvious. Any degree of softness from absolute sharpness to extreme diffusion without dependence on aperture may be obtained. This latter qualification is particularly valuable for motion picture work.

This lens is not yet on the market, although the makers plan to introduce them very shortly. The author has had the privilege of examining and using the first Motion Picture Variable produced, and feels that a description of the lens may be of value.

Description

The lens is essentially an anastigmat, and represents an effort to combine all required lens features in one objective, to produce a lens capable of doing everything now ascribed to soft portraiture. This same object has been attempted before, but never with the degree of success shown in the variable.

Optically, the lens is composed of four elements, two meniscus and two flints, unseparated, and with air-space in front and rear combinations. The lens is so calculated that by varying the thickness of the air-space between the two glasses composing the front combination a certain calculated degree of desirable aberrations is introduced. The greater the separation of the elements the

more pronounced the aberrations. The adjustment of this air-space is made by simply unscrewing the front glass, the mount of which is fitted with a special thread designed so that the glass, though freely movable, is still held firmly on its optical axis.

Name Is Apt

The name "Variable" is particularly apt. The lens not only has a variable image-quality, but varies in focal length with the adjustment of the air-space. As the focal length varies, so does the aperture, perforce. In the case of the Motion Picture Variable, the lens, when used at full diffusion is three inches in focal length and works at the aperture of F3.5. This is with the air-space at its smallest adjustment, i.e., the front element screwed all the way in. At the other extreme, that of full sharpness, the focal length shortens to 2.6 in., and the stop expands to F2.8. This latter aperture is somewhat misleading, because although the lens is at its sharp adjustment, the lens is not corrected to that speed on the sharp side. A slight reduction of aperture is necessary for sharp work, although the lens finds its most valuable pictorial use at full aperture, sharp adjustment. The reason for the too-large stop on the sharp side is found in the fact that this large aperture is valuable in obtaining extreme diffusion on the soft side. Roughly, the lens may be considered as being F3.5 soft, and F4 sharp.

Unique

The image quality at full diffusion is unique. The general effect is a blending of minute detail into mass, without loss of structure or drawing. Halo is remarkably well controlled, this feature being one particularly striven for in the calculation of the lens. In fact, the chief value of the lens, even greater than its versatility, is that the aberrations, while considerable in extent, are slight in intensity; thus giving the effect of softness without showing the means by which it is accomplished. The lens will show halo on very contrasty subjects; a rule that holds good with any soft focus device or lens. The portrait of Mrs. A. K. by Edward Weston was made with a 16-inch Variable at full aperture and full diffusion. It gives a very good idea of the unusual image quality of the Variable, and also strongly illustrates the difference between soft image and "soft focus."

A discussion of the image-quality of any soft lens naturally involves a discussion of the whole problem of soft image photography. As a general rule, both in cinematography and portraiture or pictorial work, the larger the figure, in the case of a person, the greater the degree of permissible and desirable softness. In motion picture work this is particularly apparent. A full head close-up will stand a great deal of diffusion without apparent or objectionable softness, regardless of the means employed. With a smaller figure, the softness must be correspondingly reduced; in fact, reduced beyond the possibilities of generally used means. This naturally curtails the scope of soft image work in motion pictures. A softly drawn picture of any subject, as regards to size of figure or distance from the camera, may be made very beautiful, as pictorialists have often shown us. A motion picture scene similarly treated is capable of yielding the same result. There is no artistic reason why soft drawing cannot be used in all phases of motion picture photography, provided it is never over-done, or misplaced, and it seems likely that the Variable, with its infinity of adjustment for softness, may supply the means to this end.

(Continued on page 30.)

Scenarist and Cinematographer

By June Mathis

Miss Mathis, recognized master scenarist, reveals scenario secrets which contributed greatly in creating the success of "The Four Horsemen," "Blood and Sand" and other productions.

Much has been said in regard to the unity that exists between the cinematographer and the director, but little has been said about the unity that should exist between the cinematographer and the writer for the screen. Here, after all, are the basic principles of the motion picture. For does not your production depend upon the one who makes it possible for the screen drama to exist and the other records on celluloid that which has been conceived through the medium of the type-written page? After all, the scenario is but the color-box from which the cinematographer paints the celluloid canvas?

Confide in Cinematographer

In my years of experience I have found that so few of the larger motion picture producing organizations realize this. One hears the question, when a director's name is mentioned for a prospective position, "Does he understand the camera—does he know lighting and composition?" But never once have I heard that question put when a scenario writer's name is mentioned and I say—does the average scenario writer know the camera—does he know lighting—has he taken the cinematographer into his confidence and considered the real affiliation between the scenario and the camera? Does he understand how to write for effects? What can or cannot be obtained through the magic of the lens? And if he does not, does he talk to the cinematographer and ask his assistance? So that when his script is finished and turned into production, it is not met with the wild cry that usually a new effect is greeted with, "Oh, it can't be done! Impossible!" If the writer does know the camera or has consulted the cinematographer, he can then turn on those who question him and explain just how such an effect can be obtained. If a scenario writer does not know this angle of the motion picture business, I would advise him to start in at once and learn it.

Studied Art

Past experiences and how one happens to write for the motion picture, have often been recounted, so I am going to add mine to the long list. In the first place, I have always had a great respect for the camera. I had studied art and realized the value of lighting and composition, but the celluloid medium was a great mystery to me. I felt that if I were to be successful I must make it my first consideration after my story. Through association with people who were in the motion picture business, certain camera terms were familiar to me, such as "double-exposure," "dissolve"—"fade in" and "fade out."

Had Eye For Future

But I had no idea how these were accomplished, so I seized the first opportunity that presented itself. This was to go with a small motion picture company, which would enable me to have the great advantage of being near the camera, to permit me to poke my nose into the laboratory, in other words, to be on intimate terms with this great machine were I ever to become a successful scenario

writer. Several months later, I received my first opportunity to write a feature motion picture. A director had seen a script that I had adapted and while he did not care for the story, he was struck with my display of technical knowledge of the camera as well as my knowledge of drama, for previous to this time I had been on the stage for ten years. He gave me the commission to write the company for another story that he already had.

Camera Knowledge Meant Opportunity

I should correct myself on the word "story," for it was barely an idea and consisted mostly of effects he wanted to obtain through the camera. He talked for an hour or more on double-exposure, triple exposure, black velvet dissolves,

lighting effects until, had I not been already familiar with the terms he was using, I might have thought he was speaking Greek and given up as a bad job. And opportunity would have knocked at my door in vain, for I would have been unable to say "come in." For it was my opportunity—the one that placed me in the ranks among the other workers of this great industry. From that time on, the camera work and the possibilities of it in connection with the stories have been as important as my dramatic construction.

The Camera and "The Four Horsemen"

In writing the continuity of "The Four Horsemen," could its success have been achieved without the vital and awesome spectacle of those four mounted men riding ruthlessly through the clouds, carrying with them their great momentum? Could they have possibly been realized unless one knew that such a camera trick could be obtained and that the master hand of the cinematographer could carry it out?

Cinematographer Willing to Co-operate

If at any time I am puzzled, there lies my first appeal. I have always found the cinematographer ready and willing to experiment and help. Thus the three vital forces in the making of motion pictures are the director, the cinematographer and the scenario writer.

Co-operation of Trio Necessary

Without this triad working together in perfect harmony, it is impossible, to my mind, to make a great motion picture. So again I say, the scenarist must familiarize himself with the possibilities of the camera and all avenues are open to the vision of his story. The inclusion of picture making has been established, but it remains to the cinematographer to go on experimenting, thus opening up boundless opportunities, and this he will do, if he works side by side with the writer, who will give him inspiration.

"Tess" has been completed at last and Charles Foster A. S. C. is making preparations for the filming of Mark Pickford's next production.



June Mathis

An Analysis of The Film Industry in Italy

Italians have Lost Hold They Once Held on the Films. They are Making Efforts to Retain Lost Prominence.

By Chas. Rosher, A. S. C.

Lack of Unity and Organization Hampers Italian Efforts, Writes Rosher, After Return from Trip to Latin Country.

The motion picture industry, like others in Italy, is suffering from the recent war. Ten years ago those interested in the cinema looked to Italy for new ideas in the art. Now Italy is not leading but following.

Italy can resemble the champion pugilist who has suffered defeat and, although trying to "come back," does not have the confidence in himself that he once enjoyed. While the Italian cinema workers have enough left in their professional pride to refrain with it, they do not expect a new future for their film. The majority, however, have formed a conclusion that the American product and possibly the German product have moved ahead so rapidly and gained a grip on the world market that there is scarcely a possibility for Italian production to catch up.

Tables Turned

A decade ago the American audience was admiring such Italian vehicles as "Quo Vadis" and "Cabiria." Now it is an American for one out of fifty Italian-made productions to be looked generally at in this country.

Dr. Stame Stands Out

The present all-time of the Italian industry may be traced to lack of organization. However, there are some figures such as Dr. Francesco Stame, president of "Citra," who are working hard and conscientiously to bring order out of chaos. Dr. Stame is destined to be the most prominent individual in the Italian industry. While associated with him in Italy in the filming of F. Marion Crawford's "Sant'Elia," the writer found Dr. Stame a creative genius and a tireless worker who watched every development of the art with the view of applying it to productions made in Italy. If there is any official who will attract attention to Italian efforts it will be Dr. Stame.

But as great as the endeavors of some of the executives in the relative production in Italy, the condition of the industry is far behind that in the United States. They have yet

to adopt the use of modern equipment. Their studios, which follow glass construction, are all sadly lacking in equipment. The Italians appear very willing to have modern paraphernalia, but aver that they cannot afford it.

They have found that the current Italian market for films is very unsatisfactory because of the inability of the exhibitor to pay substantial rental fees due in turn to low

admittance prices which are necessary to induce a paying attendance. It is the complaint of the producer that such minimum profits work against the expenditure for what is really very necessary equipment.

Villa D'Este Rome



Photograph by Chas. Rosher, A. S. C.

"Invasion" Not Likely

In the present state of affairs, the Italian officials believe that their hopes for the future lie first, in the American, and second, in the English markets. So strong are they in their belief that they are instantly ready to shape their production in any way which they think is sure to please the American audience. From his observations made during his stay in Italy, however, the writer does not anticipate a serious "invasion" in America of films from the Latin country.

Human Interest Lacking

The Italians seem unable to inject human interest in their creations — no neces-

sary to successfully entertain the American audience. They seem to have no comprehension of the value of the little human touches which will boost a picture from a failure to a success. If Italian productions are presented in this country at all, they will be of the period or the costume sort. The Italian in film paints with a broad brush. He obtains dazzling results but falls short in detail.

Italy has a distribution genius in the person of Mario Luperoni who is the connecting link between many of the important producers, including Americans, and the theatre in his land. He is vigorously advocating the symptomatic and modern-to-the-minute playhouse and is emphasizing the

When Yankee Wit Won Out



Cold weather, which made breath "show," did not throw Charles Hosten, A. S. C., off his schedule. Donating exhalation shows himself, he had electric heaters "installed" about himself, the star, and film—thus progressed as if it were 100 in the shade.

need of befitting music to accompany presentations. In Rome, he has constructed a very complete series of projection or really sales rooms in which he displays to the exhibitor the productions at his command.

No Direct Current

The American cinematographer would find very serious hindrances if he attempted to work in the Italian studios. There is no direct current for the use of artificial lights, and as a result Sunlight arcs cannot be used. While we were filming "Sam" Harris at Dr. Stame's "Bernini" studio in Rome, Dr. Stame, always anxious to meet the writer's needs as director of cinematography and lighting, wanted to send to Germany for a generator, which would have solved the lighting situation, but the time and delay involved were too great. The lamp available was the "Jupiter," a German creation, much more cumbersome than the American floor lamp. Although the "Bernini" studio is brand new, so new, in fact, that "Sam" Harris was the first production made therein, it is subject to the same equipment limitations as Dr. Stame's other studio, which stands at its side in Rome and which Fox rented for the filming of "Nero." The "Bernini," however, is very beautiful from the exterior. This is realized when it is known that the outside elevations contain real sculpture work, not the plaster of paris sort.

Still Use Daylight Illumination

Strange as it may seem, the Italians are still using the daylight lighting system. They haven't, unfortunately, advanced over the primitive stages of artificial lighting. Their sets are constructed with the idea in view that a certain scene will be made there at a certain time of the day. If the production schedule is thrown out of gear or if the weather interferes so that the scene cannot be made at the anticipated time, then there is nothing to do but to wait until a similar time the next day. Imagine the time, and ultimately, the dollars and cents that are lost through such a practice, although the Italian labor is very inexpensive.

The writer, however, made the first general and intensive application of artificial lighting in the history of Italian

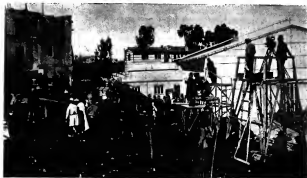
cinema. It was very hard to make the electricians, even through the aid of an excellent interpreter, understand common electrical needs. In fact, there has not as yet developed a type of studio electrician on the par with those in the United States. However, the writer met first class technical artists in Italy, prominent among whom was Pierand Rial, who was associated as a cinematographer in the filming of "Sam" Harris. There are, in addition, a great many skilled "mechanics," as they are called, available at the studios.

The application of artificial lights almost revolutionized the working program of the studio. Where the average American company is discharging its duties at its best at 1 or 3:30 in the afternoon, the Italians are thinking already of ceasing operations for the day. This spirit was so manifest that the writer grew to term 3 o'clock as the "yawning hour." Lights, which made it possible to proceed with filming until after darkness had fallen, naturally meant longer working hours and as a result there was some murmuring over this unheard-of innovation.

No Unity

As has been mentioned previously, a lack of unity is paralyzing the Italian industry. Most of their film organizations are one-man affairs, and that one man is usually a prominent or titled citizen. He is supposed to be the brain of his entire organization. Orders and ideas are supposed to come from him and him alone. His attaches—cinematographers, art directors, electricians, etc.—are not expected to advance ideas and suggestions, and not being expected to, they don't. They have their approximately fixed tasks to discharge from day to day. These they do, and so now it may seem peculiar, but if the head man of the organization comes to the studio in the morning with an idea of how to make a certain scene and one of his assistants points out a better way to do it, he will invariably refuse to depart from his original idea for fear that he will belittle his abilities in the eyes of those who are working for him. In one Italian company, the writer saw an official walk in and take a camera, which had been carefully placed in a

An Italian Long Shot



Under direction of Charles Rosier, S. S. C., camera platforms were built to restore properly a vital episode of "Mao" Maria. Rosier is seen standing on the platform-tower of the risks.

was profuse after due calculation on the part of the cinematographer, and place it in a quite contrary position, the effort being evidently sincere in the belief that he was saving the shot and the cinematographer resignedly seeing the situation without comment as if it were an everyday occurrence.

No Status

Cinematographers and brother artists and technical men are so animated by no in Latin to want to excel in their work. In fact they have no status. For that reason, developments in the art are not coming from Italy. The workers there are following the line of least resistance. They have their organizations, but even these do not appear under conditions. The writer, during his association with Italian fellow workers, tried to spur them on to take a pride in their work by citing examples of the advances and progress of men who were following similar callings in America. Their train of thought apparently had settled into a groove, however, and they seemed to take it as an accepted fact that "once a property boy, always a property boy."

Trained Specialists Needed

The Italian industry has not as yet arrived at that stage of development where the production of a motion picture is regarded as the result of the efforts of a corps of experts rather than of a single individual who has assembled about him an unorganized group of assistants whose chief duties it is to take orders. The expert and trained specialist are much needed. It may be that the Italians have placed too much credence in the idle talk which gives American stars credit for every artistic or technical achievement in such star films—without considering the men who toiled long days and nights to make the achievements possible.

The real root of the absence of initiative probably is in the Italian social system which with its graduated and autocratic "class," is like the majority of other European countries. Born a poor man in poor environment, the average Italian expects to live a poor man in poor environment, and unfortunately such misconceptions are applied and accepted in the ranks of cinema workers. The Latin makes spirit is not to be ignored, however, and figures prominently in the everyday run of things.

Market for American Equipment

Practically all equipment which is used in the Italian studios is made in Germany. This is also true of laboratory equipment. In general, the laboratory conditions are very dismaying, although the writer was conceded every available convenience for his material by Catalucci of Fotocines in Rome. Price arrangements conceded, the American equipment manufacturer would find a ready market for his product in Italy. The American production is something to be admired by the Italian film attaches and apparently they welcome its exhibition in their country. On the other hand, they are at daggers' points with the German product, as indicated by workers' demonstrations staged in the streets before the parliament building while the writer was in Rome.

Actors Are Able

The acting profession is on a very high plane in the Latin nation. An able American director would find very responsive material there, but while it is the ambition of some of the players to come some day to this country, a great many of them, like some of the most distinguished Italian opera singers, prefer to concentrate their abilities in their native land, strange as this may seem with the art in its present condition there. As a rule, the Italian actors are very sincere and painstaking with, perhaps, a tendency to over-act. Their make-up is usually flawless.

"Hollywood, Italy"

It seems that the Italians have a hobby for building their studios on hill-sides, as they do their other buildings, so that every time a level ground set is required, a portion of a hill must be cut down and graded. In the construction of sets, the Italians are far behind Americans. Their preparations for the erection of a simple set are as elaborate as if they were building an office structure.

The "Bernini" and sister studios in Rome are located in a section very similar to Hollywood, California, with corresponding plant life, including the holly, the pepper tree and the acacias. For that reason, the writer suggested to Dr. Stame that he name his region "Hollywood." The idea impressed him exceedingly and he later stated that he was taking steps to put it into effect.

The Editors' Corner

—conducted by Foster Goss

FILMS FOR EDUCATION

Rather than a curiosity to be wondered at as were primitive motion pictures, visual education is gradually leaving the plane of possibility for that of actuality as indicated by the fact that visual instruction has been made a part of the school systems of the leading cities of the United States.

That this form of schooling has its logical place in the curriculum, leading educators realize. As general as the present use of visual instruction is, compared to that of several years ago, this medium of disseminating knowledge is not being employed to the maximum of its present development. Before the ultimate application of such training is realized, and it will multiply by many times the 1922 uses, thorough experimentation requiring days and months will, of course, be necessary. Changes in school systems evolve slowly as they should, for the growing mind should not be exposed to teaching methods which are raw and uncertain. However, we owe it not only to the pupil but to the taxpayer as well to work to the utmost those phases of visual education which have been proved sound and progressive. It is estimated that two million "repeating" pupils, that is, pupils who fail and must repeat their studies, cost the nation's taxpayers seventy million dollars annually. These two million "repeaters" represent 10 per cent of the country's school population. In tests conducted in Racine, Wisconsin, and other public schools where visual instruction is included in the study program, it was found that the percentage of failures was reduced one-half. This reduction of 50 per cent, if carried to schools throughout the United States, would mean an annual saving of thirty-five millions of the taxpayers' money.

Primitive printing methods, rendering books so expensive that in the olden days they were very often chained to the walls to prevent theft, hampered for many years the progress of education among the masses. Such, however, is not the case with motion pictures which, under intelligent supervision, may be produced inexpensively enough to meet the most exacting school needs, at the same time not sacrificing quality for cost. Eventually there should be an arrangement whereby prints of various study films will be circulated among schools just as textbooks are among pupils. The professional producer and the educator must meet on common ground to determine the proper courses to follow in the production of school films. While the term visual education is generally construed to embrace the employment of maps, charts, still pictures, etc., as well as motion pictures, the cinema, it cannot be doubted, forms the backbone and the life-blood of the idea.

The instructive film will no more replace entirely the teacher, the text book or interfere with the theatrical production, than the electric light has done so with the sun.

It may be, unfortunately, that irritations which have attended in some instances making of films for amusement may have militated against a general confidence in the cinema as a means of learning, but

such eruptions are as childhood measles, forgotten in manhood, just as these chafings will be forgotten in the maturity of motion pictures.

Meanwhile, let's increase the use of instructive films in our schools. The pupils, at least, will welcome the addition and their likes are not to be completely ignored, for all learning, to be digested easily and thoroughly, must be sugar-coated a bit.

TO THE FREELANCE

Freelance and industrial cinematographers are facing an era of prosperity which the spreading uses of motion pictures are bringing their way.

Industrial organizations are comprehending the advantages that films hold for their undertakings, and are pressing them into service for many and varied purposes. Whenever the school motion picture hits its proper stride, then the perseverance of the non-theatrical cinematographer will be more than rewarded. School boards unquestionably will enter production to fill the needs peculiar to their localities. Production of that sort will not confine itself to any one section because of climatic requirements, or the like, but will spread its field over the world.

Apparently, the non-theatrical cinematographer will be in a position parallel to that of the commercial artist as compared to the distinctly professional artist. He will be assured of a steady trade and market for his services. Commercial producing outfits will locate in every community of consequence. The laboratories, and those who deal in photographic supplies along the entire line, should likewise share in the prosperity.

The American Cinematographer notes with gratification the response of the dramatic critics of the leading Los Angeles newspapers and motion picture publications to the editorial in the August issue, titled "Stating the Case." Wherever information concerning the cinematographer's connection with a film is available, he is being given credit in the reviews. The person who advances the whimsical argument that the public is "interested only in the players" is passing—after all, he always placed himself in the class with the person who argued that the reader is interested only in the book's characters, never the author. That's why we've never heard of Will Shakespeare; who is he, anyway?

The callings of the cinematographer and the projectionist are practically complementary. The work of one links with the work of the other. This truth should be duly recognized. The projectionist cannot make a perfect presentation if the photography is below par. The results of the cinematographer's efforts will not reveal themselves as 100 per cent efficient if the projectionist's presentation is not 100 per cent efficient. Appearing under another head in this issue, an article, written by F. H. Richardson, projection editor of the Moving Picture World, treats on conditions which should have the earnest consideration of the cinematographer and projectionist alike. Their relations should be closer.

That which is not right will not endure.

Can Movies Teach?

—In Two Installments

Part One

In this article, which comes from the transactions of the Society of Motion Picture Engineers, the author thoroughly considers motion pictures as educational medium.

By Rowland Rogers

Instructor Motion Picture Production
Columbia University

Part One, which follows, deals with the field, and the contribution which instructional films have to offer. Second installment will appear in the forthcoming issue.

This paper frankly confines itself to a discussion of "Can the Movies Teach?", and not the broad one, "Can the Movies Inform?" So motion pictures are considered as an adjunct to the class room and not as a source of general information and entertainment in the assembly hall of either theater or school.

Again, as about 92 per cent of our school population is in the elementary schools, and about 7 per cent in secondary schools, the success or failure of visual instruction must be decided primarily in the elementary and secondary schools. I omit consideration of such training in higher education.

Visual Instruction and Its Field

If the object of education is knowledge, skill and discipline of character, and if you agree with President Charles W. Eliot's (of Harvard) statement, "The best part of all human knowledge has come by exact and studied observation made through the senses of sight, hearing, taste, smell and touch,"—certainly we eliminate by using visual aids, most or all of training through the senses of hearing, taste, smell and touch.

What is the importance of such elimination? Professor Frank H. Spindler, formerly of Harvard University, made tests on 466 young men and women students in a western state normal school. He found these results—57.7 per cent were exclusively visual minded and 91.4 per cent were either exclusively visual minded or visual minded in combination with some of the other senses.*

Type	Number	Per Cent of Whole
Visual	262	57.7
Auditory	15	4
Motor	42	13.6
Visual and Motor	25	8.7
Visual and Auditory	26	7.7
Motor and Auditory	3	1
Visual, Auditory and Motor	47	14.3
Total Number of Students Tested	456	100

If such figures may be relied upon, and if such a ratio applies to all men and women—and they may—I do not say they do) we may safely conclude that from 10 per cent to 90 per cent of all people do not respond primarily to visual means and that visual aids are not the best tools with which to reach them.

We then consider visual instruction in the remaining field—which may embrace from 60 per cent to 90 per cent of all people.

Visual instruction, of course, is the use of aids such as motion picture films, slides, stereographs, charts, etc., to appeal to the mind through the sense of sight.

Since we agree the objective is to impart knowledge, train the power of observation, promote skill and induce the reasoning mind, a well balanced education program may well include a knowledge of:

1. Language.
2. Mathematics.
3. Fine Arts.
4. Science.
5. Humanistic or classical studies.

We will see the extent to which the movies have or may contribute to this instruction.

What Films Offer

Action, giving life-like reality, is the fundamental contribution of motion pictures to visual instruction.

A second important contribution of the movies is their ability to make minds meet, upon a common basis of understanding. They make an impression which is standardized, uniform and exact. The movies will visualize, for example, a dog or a machine, its size, form and action, and provide an unmistakable mutual meeting ground for all minds. They are a genuine universal language.

Another important contribution is the fact that movies are the cheapest method of reaching large numbers of people. They have the lowest per capita cost.

Again, movies are the quickest means of insuring ideas—16,000 separate mental impressions are made in 15 minutes. This speed stimulates the mind to observe and react quickly.

The movies overcome time, size and space. They reproduce for all time, we hope, a faithful record of past action and events. They unfold the mysteries of far away places and customs, anywhere on the earth's surface. They uncover to all eyes the marvels of the minute world revealed by microscope. They make known the immensities of the universe discovered by the telescope.

Appeal of Motion Pictures

Words, in the form of language, spoken or written, may appeal through "style." And style, according to an authority, Prof. Barrett Wendell, has three elements—learned force and elegance.

Movies are merely tools, in the form of pictures, to express ideas. They, too, must have clearness, force and elegance.

In other words, both movies and words have three fundamental appeals:

1. An appeal to the intellect, reason or judgment (clearness).
2. An appeal to the emotions, instincts or the feeling (force).
3. An appeal to the artistic sense which responds to the pictorially beautiful (elegance).

The well balanced educational program may include a knowledge of language, mathematics, fine arts, science and the humanities. There is no sound reason why movie cannot be designed to appeal to the intellect, the instinct and the artistic sense in teaching each of these subjects. No one doubts that theatrical movies have at times a vivid emotional appeal. Why not link up the teaching of English or history or psychology with the fundamental instinctive appeals?

Although 34 American cities are using motion picture for class room or assembly hall instruction, nearly all their subjects were produced as entertainment movies. These were planned originally for circulation in theaters. They have been recast, retitled, re-edited for school distribution. Such material is certainly not more than 10 per cent efficient. There are probably not more than a dozen groups of pictures (if that many) which have been designed primarily for instruction.

Another difficulty in using movies successfully for instruction is the fact that movie men and women as a class do not understand instructional or pedagogical pictures.

(To be concluded in the October number of the *American Cinematographer*.)

*Frank H. Spindler—"Sense of Sight."



One of Alop's cartoons, with Mrs. Alop (Carl, aged 10 and Williams, aged 8, as characters.

Photography In Cartoons

By Foster Goss

Los Angeles man devises photographic cartoon **C** Action
entirely expressed by pantomime

The invention of the photographic cartoon by George Alop, Los Angeles artist and advertising designer, stands out as probably the most noteworthy advancement in cartoons since the popular strip of the present was first generally accepted.

Alop depends entirely upon photographs to convey the meaning of the subject at hand, not using a printed message of any sort, whether conversational or otherwise, to explain the action of his characters.

His cartoon characters are his family including Mrs. Alop and five Alop kiddies ranging in ages from 2½ to 11 years. Alop conceived the idea several years ago, but he applied his attention to its development only as time would permit; in fact, he has conducted practically all of his experiments thereon in his leisure hours at night.

That Alop has in his power an idea which should materialize very substantially seems certain. The action of his strip is expressed entirely by pantomime in still pictures. The prime object of cartoons is to amuse and, to break, through pictures, the "heaviness" to which a publication filled only with type reproduction is subjected. An inspection will show that many of the most popular of the current cartoons are mere pen illustrations of the cartoonist's philosophy and witticisms which rely on the printed word to be "put across." In other words, if the printed sayings which are a part of virtually every cartoon were eliminated, the pen and ink figures which would remain would not be capable of conveying the significance of the cartoon; and, to view the matter practically, the sayings, which carry the ideas of the cartoonist, might be put in type, saving the publisher valuable space.

Cartoon An Institution, However

But the strip cartoon is an institution among American families, and its place in the newspaper nor the ability of the cartoonist cannot be denied. Perhaps Alop's idea, being in a class by itself, should be designated by some

other name. The fact remains, nevertheless, that the original novelty of the strip cartoon has been lessened through the increasing use of this form of feature.

It is noted that newspapers throughout the United States within the past year have been adopting full-page picture departments in which appear news photographs covering international national and local happenings. This would indicate that those who publish newspapers believe the readers are generally interested in and absorbing such photographic reproductions. If this be the case, then an explanation is at hand for the fact that Alop has been approached by a well-known syndicate with an offer to try out the drawing power of his idea.

Alop's cartoon will be more expensive to create than that form which is in vogue at present, since a certain number of models are required as characters. It appears as if there might be a possibility, in view of the Alop idea is ever generally popular, that those connected with the photographic cartoon will parallel the cinema player in winning, according to the merits of their work, an identification before the public so that their appearances in or their affiliation with the cartoon will be looked forward to just as the player's appearance in a motion picture is awaited. This would depart from the current practice in photographic illustrations, in which the character is performed unnamed and only the photographer given credit.

Alop, himself, in the creation of his cartoons, is a producer of many callings. He assumes the position of director as well as photographer. Before a scene is "shot," he rehearses many times, in true motion picture fashion, those of his family who appear therein. He is the director of lighting for he makes all necessary lighting arrangements; he is the laboratory man who develops his negative. Besides being the author who conceives the story of his cartoon, he is the scenarist who divides the action in the required number of scenes which are usually embraced in four to six photographs, all of which are taken by flashlight.

Artificial Lighting of Motion Picture Studios

Dr. Michens discusses subject of outstanding importance in film production

By Dr. Alfred B. Hitchins,
F.R.S., F.R.M.S., F.C.S.

Member of the Society of Motion Picture Engineers

Director of Ansco Research Laboratory gives various ray particulars

Recently a series of experiments have been conducted to determine the utility of the various light sources commonly in use for illuminating motion picture studios. The work was approached from photographic, physiological and psychological view points. Naturally a mass of data was obtained, much of which would make tedious and tiresome reading in a popular article. However, some of the more practical results should be of interest to the cameraman.

From the photographic view point, the most important quality of a light source is its actinic value or photographic efficiency. Actinic value is governed by the dominant color of the light, and this dominant color must be of about the same wavelength as that to which the emulsion is most sensitive. The ordinary plate has its maximum sensitiveness in pure blue and is practically insensitive beyond blue-green; hence, artificial light sources must be chosen which will give the best results in keeping with this condition.

No Eye Judgment

Fig. 1 shows the curve of sensitiveness of the ordinary photographic negative emulsion, also the curve corresponding to the spectral sensibility of the eye. It will be seen that the eye has its maximum perception in a totally different region to the photographic plate, so that it is not possible to judge or test a light for studio illumination by means of the eye. It must be tested on the photographic media with which we are to work. In a laboratory devoted to photographic science elaborate and accurate means are employed for testing of photographic raw materials and apparatus used in connection with photographic practice. For testing the actinic or photographic power of light a modification of the Harter and Driffield system is used.

Testing Color Values

The series of geometrically increasing exposures are made with the light source under test. The densities obtained as the result of these exposures are read on a photometer in the usual way and plotted in the form of a curve, the curve so obtained being a direct measurement of the actinic or photographic value of the light source. By this means we are able to find out the exact photographic value of any light, also its response to increased voltage and many other things of interest. For testing the color values throughout the spectrum of any light source, we can make a visual reading through a spectrophotometer and obtain a curve of spectral values; or better still we can actually make a photograph of the spectrum of the light under consideration directly on the photographic film.

Instrument

The instrument used for this purpose is a diffraction grating spectrograph, and the light to be tested is arranged so as to illuminate the slit of the instrument, the photographic material being placed in a plateholder in the focal plane of the spectrum. Ordinary methods of photometry are not applicable to measuring light sources for photography because of the difference in sensibility of the eye and the photographic plate. We must form our opinion of the light solely from the view-point of its photographic intensity, and the only way to test it is to use photographic material. The light source which gives the higher

reading in actinic value is the mercury vapor lamp. When the curves representing the photographic efficiency of the light sources are plotted, they are very similar in form to the usual H and D curve representing the quality of a photographic emulsion. In fact they are nothing more than the performance of the emulsion used in conjunction with the particular light source which has been tested. Rendering power or the power of differentiation of tone values is indicated by the length of the straight line portion of the curve, and it is characteristic of the mercury vapor lamp that the curve is in addition to showing a higher actinic value than tungsten or arc lamps also invariably shows a long straight-line portion.

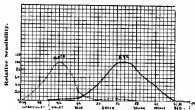


Fig. 1—Intensity of Visible Spectrum.

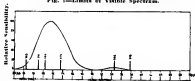


Fig. 2—Sensitivity Curve of the Ordinary Photographic Plate.

Borne Out in Practice

This is borne out in practice. A scene which has been photographed with mercury vapor light invariably shows better modeling and tone relations than subjects which have been made with other light sources. The high actinic value of this lamp is seen in Fig. 2, which shows the spectrum of this light. It will be noticed that there are four (4) principal lines in the visible spectrum which stand out prominently at wave lengths 4040, 4350, 5460 and 5780. Of these four lines about 35 per cent of the visible light is derived from 4040 and 4350, which lie in the region where the ordinary emulsion is most sensitive. The maximum sensitivity of the plate is around 4350, and in this region the light of the mercury vapor lamp is particularly powerful.

Other Important Reasons

There are other important reasons why the mercury vapor lamp is desirable for studio illumination. The light is emanating from a long tube in place of being concentrated in a small point as with the arc lamp. This means better diffusion of the light which produces a lighting effect very similar to daylight; in fact, the mercury vapor may be used to reinforce falling daylight. When arc lamp

Projectionist and Cinematographer

By F. H. Richardson

Richardson, who is projection editor of the Moving Picture World, deals with facts which are interesting to cinematographer and projectionist alike.

I wonder how many cameramen, who have a just pride in the really magnificent work they are "father" to, understand and know that insofar as concerns the final layer of their product, the motion picture theater patron—the public—the excellence of the product is entirely in the hands of and at the mercy of the projectionist.

Does the average cameraman ever stop to consider that no matter how sharp his "focus" may be, it will be something less than sharp if the conditions of projection be not right?

Does he appreciate the fact that the work of the splendid cameraman who is careless, will all go awry if the projectionist is careless or does not understand his business?

Projectionist Is Important

Does the average cameraman have the slightest appreciation of understanding of the emancipation his work is subjected to when placed in the hands of an incompetent projectionist, or a projectionist who is careless? I think not, hence, it has occurred to me that attention should be directed to the fact that the cameraman and the projectionist link inseparably together.

We will assume that every cameraman is deeply interested in seeing his work placed before the public in a way which will bring out and emphasize its excellence. We often see the name of the cameraman blazoned forth on the screen, followed by work which makes the unknown man wonder why he permitted it to be used. The picture is "fuzzy," lacks detail and is "flat." The critical comment of the average man in the audience is "rotten cinematography." The knowing one assigns the fault where it probably belongs, though even he cannot be sure it is all due to projection faults.

Some Beyond Projectionist's Control

Seeing lack of sharpness may be due to many causes, some of which are beyond the control of the projectionist. For example, projection lenses; an unsuitable condenser, and a "boom" refusing to purchase suitable lenses;

a projector optical train not properly adjusted; a projection room so far removed from the screen that the projectionist has not a sharp view thereof, or the view of the projectionist hindered by faults in theater construction, as sometimes happens, and soiled lenses are some of them. A wrongly adjusted revolving shutter or a shutter with a too narrow master blade, so that there is faint travel ghost, is another.

I could use up a lot of space in explaining the reasons why a picture with splendid "depth" is made to appear "flat" by wrong methods in projection; what various faults in projection practice operate to greatly injure or utterly ruin the beauty of the work of the cameraman, but of what avail?

Efficient Reproduction Needed

The purpose of this article is to call the attention of cameramen to the fact that if their work is to be placed before audiences at 100 per cent value, then there must be men of real ability and brains in the exhibitors' projection rooms. Cinematographers must come to a realization that unless their work be handled with a high degree of skill—by men of real knowledge and ability in its reproduction on the theater screen, it will inevitably suffer, and suffer in proportion to the lack of skill in projection.

It is high time that producers, directors, artists, cameramen and every one concerned came to a realization that it is something worse than mere foolishness to expend huge sums of money and tremendous effort in the perfection of a photoplay and then to turn it over for reproduction before the ultimate buyer, the public, to (it often happens) a man of very slight knowledge and skill, who has neither pride nor ambition to place the production before the audience in the most artistic possible way.

Lack of Interest

Up to this time it is an almost incomprehensible fact that the producer does not seem to take even the very least interest in how his production is reproduced upon the screen, though none but the fool would or will dispute

(Continued on page 24)



Recognize them? Members of the mid-Kennedy Stock Company. Can you locate Ruth Stuckness, Mabel Forrest, Francis A. Buchanan, Beverly Bayne, Bryant Washburn, Wallace Berry, Robert Heider, John Cosens, Ben Turpin, Lee White and Richard Travis? Gloria Swanson and Agnes Ayres, who were beginning their careers at the Essanay studios at the time, just released the "setting." Jackman Ross, A. S. C.



With sincere esteem, received
From the Laboratory
Thomas A. Edison
Orange, N.J.

Mr. Philip H. Whitman, Secy.
 American Society of Cinematographers, Inc.
 5372 Hollywood Blvd. Los Angeles, Cal.

Dear Mr. Whitman:

Allow me to thank you for your letter of July 21st, in which you state that the Board of Governors of the American Society of Cinematographers has elected me an honorary member of the Society.

I appreciate the honor thus conferred upon me, and beg to inform the Board of Governors that I accept the election with pleasure.

Yours very truly,

Thomas A. Edison

TAE:FTZ

Thomas A. Edison's letter of acceptance of his election to honorary membership in the American Society of Cinematographers.

(Edison insert photograph by Nat'l News Ass'n)

Double Exposures of the Early Days

The very interesting article on the laboratories in the August issue of the "American Cinematographer" by Mr. John M. Nickolains wherein he says, "We have a soft time now compared with the early days," is also true in many ways of the camera and of the art, particularly double exposure work.

My experience began in 1899 when the producing companies built their own cameras. Looked at in the light of present days, fearful and wonderful things they were.

1909 Equipment

With the Edison Company then, a cameraman's equipment consisted of a camera, one lens, and a plain tripod without "pan" or "tilt." Focusing was done by patting one's head inside the camera with a magnifying glass held in the hand with which we sometimes got absolute sharpness. Later a brass microscope, about 15 inches long and weighing about one and one-half pounds, was developed and had to be adjusted to its individual lens and then treated as gently as a pet corn to prevent it from being jarred out of adjustment.

Double Exposures In Demand

No dramatic picture was complete without some double exposures. Our apparatus for making them was sheets of black paper and wooden hood strapped on front of the camera. No rewinding in the camera, no dissolving shut-

ters. Brautiqam describes methods employed to obtain primitive double exposures.

By Otto Brautiqam

This article will be continued in the October issue.

Brautiqam describes methods employed to obtain primitive double exposures. This article will be continued in the October issue.

My first double exposure was in my first picture. I will not take up space to go over familiar ground by comparing the methods we would use in these enlightened days of the camera art, but will confine myself to the way of that time, knowing no better, and restricted by our crude apparatus.

Freight Car Locale

In this first effort of mine, considerable action took place inside a moving freight car. The floor, end, and side of the car were erected in the studio. The outdoors as seen through the open door was represented by black velvet. The passing scenery had to be doubled in. The camera was strapped in an auto, the wooden hood in front with a developed and dried test piece in the camera and sheets of black paper glued on to mask out all but the doorway. Then came numberless tests developed in a changing box at the roadside to insure sharpness, balanced exposure, and minimum of vignetting around the edges without overlapping the doorway. Remember that changing of exposure had to be by lens diaphragm with consequent

(Continued on page 24)

JIMMY THE ASSISTANT

ON ART AND BUSINESS

Art and business is supposed to be on the outs, as a rule. A *artist* is supposed to be a punk business man, and a *business man* is supposed to be nothing about art. This whole idea is the original raspberry.

A successful business man has got to be a *artist*, if it ain't nuthin' more than the art of outsmartin' people. And a *artist* has got to sell his stuff or he don't eat. So that's that.

There's a lot of bunk floatin' round in cameramen's heads about art and business not mixin' no more than oil and water. Well, vinegar is mostly water, y'know, and they has been some pretty good French dressin's made up with it with oil. All you gotta do is beat 'em together good.

A successful cameraman has got to be a good business man. The firm hires him has got it all doped out from a business percentage basis. They pay him so much. That's a guarantee. He returns a picture, more or less good, in a more or less time. That's the return. The value of his product minus his salary cost is the profit on his share investment. I might as well remark here as anywhere else that cameramen which don't show a profit on his salary investment don't get along very good, even often, or very much, or very long.

There's the whole thing—return on the salary investment.

There's some cameramen which gets along great because although maybe there work ain't up to the highest quick standard or ain't A number 1 in a lotta ways, but they're quick as lightning and don't never hardly ever get no grief in spite of there speed. They can cut from one to five days off a production filming time. That puts him way up in the money saving class. He most likely returns ten times his salary every year in time lost which is money savin'. This naturally makes him a popular guy with a lotta companys, especially ones hard times.

Then there's the other kind which is so downright slow that they can do most anything with a camera when it comes to turning out fine work. These birds is almost always slow. They has to be. You can't turn out carefree work all the time like you was grindin' corn. It takes thought and originality and both takes time. But they pays work is so wonderful when they do get it that it don't make no difference how long it takes, because it's worth it to the picture. The extra time is paid up in extra fine work, and pays a bigger return to the company than poorer faster photography would. All five of these guys is workin' on long term contracts.

The cameramen most liked by producers comes somewhere in between these two classes. The first class ain't hardly good enough for a company which can afford to pay for first class work. A *silver* is probly the best backup for a guy which has to play close, but when he gets a little dough ahead he usually picks up somethin' a little more expensive but classier. Same way with cameramen who's only claim to a job is economy.

They want enough of the other class to make 'em figure this ain't no slam at the cameramen, gennyuses ain't common enough in any business to cut much figure as a staple. The cameramen most in demand is the kinds which is a good cross between the two classes mentioned. And that's naturally calls for a pretty good mixture of business and art.

A cameraman without art is like shoes without feet. Pretty, looks useful and all that, but don't get nowhere. All the business ability on earth ain't gonna get far

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A cinematographer's interests are the same as his producer's. Both want perfect laboratory work. They want clear, durable negatives; honest sample prints giving truthful production records; release prints of highest quality that last. A cinematographer's professional standing depends upon what the producer sees in the studio projection room. A producer's reputation depends upon what the public sees upon the screen. Hence, both sample and release prints should be without a flaw.

To obtain such perfection the same laboratory should handle a production from the camera to the screen. Then inferior release prints can't be blamed on the negative. The responsibility is undivided.

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cameraman's work, his stock in trade with nothing without a certain percentage of excitement.

There again, a cameraman which can't understand that he is in a business, both from his and his employers' angle, will go to get much chance to use his art.

There is money, and it's money in the Moving Pictures that it is a most business. They got it all figured out before a picture starts how much dough each day is going to cost. Days and dollars, and the more days the more dollars.

Under these conditions, the cameraman has got to figure out how to get the best possible work in the least possible time. This don't mean rush. Rushing is awful expensive in movie taking, especially when it involves something to stop down, or ramp's. No, it don't mean rush. But it does mean organization, forces, personal and otherwise. It means forethought in having things done in advance, and in keeping everybody under him on the job. It means workin' hand in mit with the rest of the stage and in keepin' things goin' smooth generally.

Organization which can surround himself with a gang which is pullin' with him, and he pullin' with them all, because he's got most his troubles licked right off the bat, is a darn good business for him to bring this about if he can.

All this is business—business organization. It also steps very close to being art. But the art of diplomacy and the art of organization and what we generally mean by the term art.

When it comes right down to the technical work of using the stuff on the screen, then the true art as understood comes in. I can't tell nobody nothing about this, but I have a hunch nobody else can. I can't think of art as bein' nothing else but a instinct toward the beautiful or perfect, and I don't think it can be developed 'cept by being in sympathetic contact with things which are useful and dramatic. And I've always noticed that cameramen which do the best work keeps close to the set. They strives to show by photography what the actor tries to show by action, and maybe that is why some of their stuff is so original. A new angle on art or action inspires a new angle on art or action, maybe. I believe a camera-man I don't hesitate to say for sure, from my own eye view, it seems like it can't be pulled else.

Cameramen which considers themselves part of the organization, rather than camera soloists, so's to speak is the real business men. They knows when it's worth while to take a little extra time playin' for a effect, or when to drop the high art stuff and hunk into a hard job of good standard stuff, and knock off a lot of ahead, because they knows what is important to history and what ain't.

Sometimes a scene is cheap at the cost of a day's work; but if it's pretty or unusual photography ain't needed, and it's up to the business instinct of the cameraman to decide which is what. It's pretty hard to think of anything a cameraman has to do that ain't somehow connected with their business principals.

Art and business. Two wonderful things which gains strength when mixed. Just like the oil and vinegar in a salad dressing, art and business don't look like they would mix, cause they're so different, but they will if you mix 'em together hard enough!



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Modern Lenses

(Continued from page 33)

The most valuable point about the Variable at the present time is not to be found in either its image quality, nor its versatility, but in the fact that it is a demonstration of co-operation on the part of lens-makers. The opticians of today, and particularly our own American opticians, are not only willing but anxious to help better photography and cinematography, and have, in the instance of this and other lenses, shown by concrete example their readiness to employ their resources in the production of suitable tools with which to grapple with the ever-increasing difficulties of cinematography.

The author, in the course of the necessarily great amount of correspondence incident to the preparation of this article, has found this attitude to be unanimous with the opticians. There is an excellent reason back of it all. American optics, for the first time, has a chance to excel those of Germany, the ancient leader, and present rival.

Source of Opportunity

The chance for leadership grew out of the late war. Germany controlled optics through the monopoly on optical glass. The war forced America into the production of its own optical glass, for imperative military reason, and the final result was that American optical glass was produced that not only equaled but excelled German glass. Lenses for airplanes, etc., had to be shaped from this glass, and once more American opticians made good. The end of the war found America independent in the matter of optics; the American opticians had won their independence.

Now it is a case of not only holding, but firmly intrenching this position. It will not do to simply keep up the routine of lens production as in the past. Definite progress of design must be made. Yet lenses are corrected, as far as optical corrections are concerned, to a degree of nicety. Whatever changes are made must be in regards to the peculiarities of the work for which they are made; and once these peculiarities are known, it is relatively easy for the lens maker to concentrate upon them, and produce a lens particularly suited to the purpose. Such is the case of the Variable, and other new lenses to be treated later.

But a lens maker is not necessarily an extensive lens user, and realizes the fact that he cannot possibly appreciate the practical working qualities of his product as well as the man who uses it.

American opticians are thirsty for knowledge; knowledge of just what is most desired of them. They have everything needed to produce anything needed, and the means to correct any unsatisfactory feature of their present products, once it is known.

Surely nothing could be fairer or finer than this. The least photographers can do is to return this spirit of co-operation. The opportunity is here, and the time is ripe for a great forward step in the evolution of finer lenses—a rare opportunity indeed. It rests with the photographer to do his share. He need not necessarily buy, but at least thoroughly test each new offering, and make a conscientious report of his findings to the maker. Such an effort will give the optician much-needed information, and the result is bound to be a furthering toward that constant goal for which we are all striving—perfect photography.

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CAMERA MEN, GET ACQUAINTED

Artificial Lighting of Motion Picture Studios

(Continued from page 14)

We need there is, after a time, a great deal of discomfort due to the glare and undoubtedly such sharp sources of light as the arc lamp do affect the facial expression of the actors. From the standpoint of good acting, glare is very undesirable, for it is exceedingly difficult for an actor to register the necessary emotions when his eyes are subjected to such discomfort.

About Ultra-Violet and Infra-Red Rays

Recently a good deal has been written regarding the various effects of ultra-violet and infra-red rays. It is known definitely that radiation which is positively destructive of living tissue is of a wavelength shorter than light. Radiation around 3600 is practically all absorbed by the crystalline lens, the cornea and the vitreous humor of the eye so that there is actually very little danger of such radiation reaching the retina and inflicting permanent injury. The eye is a most sensitive and adaptable optical instrument and operates comfortably over an extremely wide change in light intensities the working range being somewhere up the neighborhood of one to ten billion. The most efficient region of operation, however, is somewhere between the brightness of average daylight and a properly lit interior at night, and it is certain that greater artists and better acting are forthcoming when the players are working under a light source that enables the eye to function normally and without fatigue.

Divided Opinion

With regard to the photographic usefulness of ultra-violet opinion is pretty well divided. There are some who think that ultra-violet light is of comparatively little importance in a photographic light source. Others consider it absolutely necessary, but the results of experiments show that the ultra-violet can be materially cut down without the light source losing its photographic strength. The same thing is true of the other end of the spectrum—the infra-red. With the photographic emulsions in general use no effect is due or advantage gained by light beyond the orange and the more the red and wide spectrum can be screened out the less the glare. The elimination of glare in motion picture studio illumination is of real importance, because it is an established fact that long exposure to very high intensities and contrast produce a serious eye fatigue which may in the course of time result in permanent injury. Here again the mercury vapor lamp has the advantage. The light is practically without glare, and being softly diffused is not at all hard upon the eyes.

Little Glare in Big Set

It is a big set with as many as two or three hundred lamps, there is practically no glare. For instance when you sit in the box on a set there will be a total candle power of 10,000, yet there is no point where the intensity of light is greater than 15 candles per square inch, whereas, with other light sources, this will run as high as 1000 candles per square inch, a condition which is bound to cause contraction of the pupil of the eye and an unnatural expression. Another advantage is that the temperature of the stage is only very slightly raised above the normal studio temperature, thus a much more comfortable set of conditions are provided for the actors. It has been stated that the psychological effect of color has a great deal to do with the portrayal of emotion, it being claimed that the light of the mercury vapor is a difficult one in which to produce joyous and happy effects; but in practice this has not been found to be altogether true.

Visual Acuity

Another important psychological aspect is visual acuity, that is to say the maximum observation and perception of form and detail in minimum time. Acuity is governed

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to illumination intensity, and it has been proved that monochromatic lights, or at least lights of simple spectral composition, produce conditions conducive to high visual acuity. With such a light source the director and cameraman are able to observe modeling and lighting effects more easily, and line control may thus be obtained over the lighting of the set and particularly the lighting of individual actors in close-ups.

Lighting System Cost

Another important thing is the cost of a lighting system. The first expense is not of the greatest importance. It is far more important that the system should be uniform in quality, give maximum photographic intensity for minimum current and be reasonably cheap so far as upkeep is concerned. As the exposures in taking motion pictures are comparatively quick, plenty of light must be provided, and under usual conditions the floor illumination will average about four to five hundred foot candles. When using the mercury vapor lamp this can be obtained with a current of about 100 watts per square foot of floor space. There seems to be no doubt that for general studio illumination the mercury vapor lamp is the most suitable. The life of the tubes is long, there are no carbons to keep trimmed, the light is practically without glare, and there is no discomfort due to heat. In every motion picture studio it will, of course, be necessary to have some arc lamps for the purpose of spotting and for the local production of intense high-lights and for the production of special lighting effects.

Suggested Studies

The cameraman should make a study of the simple physics of light and should understand the laws of reflection, the influence of light upon form and modeling, so that he may, when viewing an illuminated set or player be able to make a mental translation of the lighting as observed into terms of photographic negative. In other words, he should be able to judge from the appearance of the illumination what to expect in his negative in the form of contrast, modeling and photographic quality. Lighting the set is unquestionably part of the cameraman's job, and by making a study of lighting he should gain the confidence of the director so that everything relating to the lighting of the set may be left to his skill and judgment.

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Max DuPont, whose work has placed him in the ranks of the foremost cinematographers, has been elected a member of the American Society of Cinematographers.

Mr. DuPont, a veteran of the recent war, having served two and one-half years in the French army.

The new A. S. C. member started his career as a weak painter, after which he made his entry into the realm of the amateur photographer. He took cognizance of the growing popularity of the cinema and advanced his activities to living travelogues.

Productions Filmed

Now located in Los Angeles, DuPont has been the cinematographer of various of the most prominent recent feature releases. These include "The Highest Trap," "A Gentleman of Quality," "A Woman's Romance," "The Fear of 'The Horse's Neck,'" and "The Wolf," all directed by Louis Vorst for Vitaphone; "When a Man Loves," directed by Chester Bennett for Vitaphone; "Just a Wife," "Blind Luck," "The Invisible Divorce," "Palace of the Darkened Windows," and "Who Am I?" all Selznick productions; "Memento," and "Love Never Dies," both directed by Rex Victor; "Winning With Wits," Fox production; Max Linder, "The Three Must Get-Theres"; "A Man of Action" and "The Sunshine Trail," both here productions; and "Red Justice," which he has just completed for Edward Smith.

DuPont is also an expert miniature builder.

FRED JACKMAN, A. S. C. PRESIDENT, BACK FROM 3900-MILE MOTOR TRIP

Fred Jackman, president of the American Society of Cinematographers, has returned to Los Angeles from a bewitching automobile trip which he, with his family, took through Arizona, Utah, Nevada, Montana, Wyoming, Idaho, Washington, Oregon and California.

Jackman's only regret arising from this trip is that he did not have a camera with him on the occasion the A. S. C. party discovered a number of beavers building a dam in a lake several hundred yards off a mountain road overlooking the lake. The Jackman party stole to a point within the jaws of the lake, and, concealed in the undergrowth, watched the operations of the beavers for a full half hour. The A. S. C. president believes that he could have set up cameras if he had had it with him, in the bushes and worked in celluloid, for future use, the activities of the beaver quadrupeds.

The Jackman party spent four days in Yellowstone Park and did not meet with a single mishap during the entire trip.

SOL POLITO DEPARTS FOR NEW YORK TO HEAD CINEMATOPHILIC DEPT.

Sol Polito, A. S. C., will leave shortly for New York City where he becomes identified with Edwina Carow's Productions as head cinematographer. Polito has just finished photographing "Bishop of the Ozarks," a Plains Fox production. Polito will be accompanied by Robert De Lacy, who was film editor of "Bishop of the Ozarks," and who will work in a similar capacity with Erwin Carow's Productions.

S. M. P. E. CONVENTION CALLED FOR OCTOBER IN ROCHESTER

The Society of Motion Picture Engineers' fall convention will be held October 9 to 12 at the Powers Hotel, Rochester, N. Y.

The spring convention, which was held in Boston in May, was a notable success.

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Projectionist and Cinematographer

(Continued from page 17)

that this item has very much to do with its success with the audience.

Protests Are Rare

I have never in all my experience heard of a director protesting at the literal emasculation of his work in its reproduction before the public. I have never, in all the years, heard of a single star uttering a protest at the fact that he or she is literally made ridiculous before audiences by wrong tempo in projection, or because he or she is literally blotted out, perhaps at the middle of the most intensely interesting point of the whole play, by shadows caused by ignorance or plain carelessness on the part of the projectionist. Did you, yourself, ever hear of anything of the sort in any of the thousands of "interviews" with stars published? Or did you ever hear of a cameraman uttering protest at the butchery of all the splendid work he put into the films at the cost of great effort and almost endless care. DID YOU?

Since the success of a production depends so greatly on the manner in which the projectionist handles it, then it is only plausible that the cinematographer, the star, the director, or whoever is interested in the production should in turn be interested in the projectionist. If he is an able man, their work will show to best advantage. If he is not efficient, it will appear otherwise. Don't neglect consideration of the projectionist—your success or failure may depend, to a great degree, on him.

Double Exposures of the Early Days

(Continued from page 16)

change of marking. Time and again the wind tore off the paper marks so we had to do everything over again.

Stationary Actors

In "The Gunboats of Washington" were a series of dissolves that created a sensation at that time, and their success was due entirely to the ability of Messrs. Mary McDermott and Elgie Low Cooper to remain absolutely stationary for some considerable time. McDermott, as an aged "Revolutionary" soldier, enters an inn, starts to tell his story and points off in the distance. Presumably, the scene dissolved to him as a young man outside his father's house. There was not a waver of his hand or a quiver of his body, although he had to "hold" after the fade out until film had been cranked through for the second part of the scene and until a test piece had been photographed.

Perfect Match

The figure was perfectly matched while his make-up, costume and back ground changed. This was accomplished by inserting the developed results of the above mentioned test and matching the figures. After this, McDermott had to hold while the camera was threaded and cranked to where the dissolve occurred. It took two men to make a dissolve. Lewis Phoebe, now connected with Goldwyn studio, handled the dissolves for me. To this day our troubles over that picture are a favorite topic of discussion.

Later in the story, McDermott had to run to the barn, stop and hail someone inside; after which we dissolved to him as the old man at the inn. As the square stopped at the inn door we dissolved again to the two as young men, the two figures and the two doorways matching. If not mistaken, I had on this job the only tripod with a pan in the studio. But there was no tilt.

The Edison Company clung to their old rattle boxes longer than anyone else, as we thought Edison's laboratory was producing a camera that was going to beat them all but it never materialized.

(To be concluded in the October number of the American Cinematographer)

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John I. Rosen, A. S. C., has finished directing "The Young Rajah" starring Rudolph Valentino, and is enjoying a well-earned vacation before beginning the direction of his next production for Paramount.

George D. Smith, A. S. C., continues to add master touches to the filming of Richard Walton Tully's production, "Omar the Tentmaker."

Bernie L. Jones, A. S. C., has joined the cinematographic staff of Larry Semon comedies, where he is associated with Ben Kornelkamp, A. S. C.

Alfred Harlanter, A. S. C., has finished photographing "The Flying Dutchman" in San Francisco and is in Los Angeles at present considering various offers to film productions in that city.

George Barnes, A. S. C., is filming King Vidor's production of "Devil of My Heart," starring Laurette Taylor.

Jackson Rose, A. S. C., has returned to Los Angeles from a combined business-pleasure trip to San Francisco.

John Arnold, A. S. C., has completed filming "June Madam" starring Viola Dana and will begin shortly photographing "Miss Emily Lou," also starring Miss Dana for Fox.

The Mitchell Camera Company has reorganized and incorporated under the firm name of the Mitchell Camera Corporation, with a capitalization of \$500,000. At a recent meeting of the concern, H. F. Boeser was re-elected president; general manager, M. J. Berger, vice-president; and Gene Mitchell, proprietor of the Mitchell camera, secretary and treasurer. According to announced plans, a new building will be erected, to cost \$40,000, after which a like amount will be expended for manufacturing equipment.

Scenes of Rene Guisart, A. S. C., as chief cinematographer for Harley Knoles productions in London, have proved so invaluable that his stay in England is announced indefinite.

J. E. Lockwood, A. S. C., is filming Hunt Stromberg productions.

Paul Irlie, art director for Cecil De Mille, addressed the A. S. C. opening meeting on August 21. He spoke on "The Art Director and the Cinematographer."

John Seitz, A. S. C., has left for New York City, to continue as head cinematographer for Rex Ingram productions to be made in that city.

Steve Smith, A. S. C., is vacationing until filming on his next Vitaphone production begins.

Steve Norton, A. S. C., is filming two-reel historical vehicles for Choice Productions.

Edward Kuhl, A. S. C., is directing Universal's series of productions of Jack London's "Tales of the Fish Patrol," starring Jack Muhlall.

Jimmy Van Trees, A. S. C., is at leisure until Phil Rosen begins directing his next Paramount production. Jimmy photographed "The Young Rajah," which Phil directed.

Kline Gray, A. S. C., is filming Hallroom Boys comedies.

Bert Cann, A. S. C., is still holding forth in Vienna, according to the latest post card.

Paul Perry, A. S. C., is completing the filming of "Singed Wings," a Penelopy Stanlaws production, starring Bebe Daniels.

Due to the absence of John Seitz in New York, Paul Perry has been appointed to assume his place on the A. S. C. Board of Governors.

Al Gilks, A. S. C., is photographing "His American Wife," starring Gloria Swanson.

Guy Wilky, A. S. C., is putting the finishing touches on "Clarence," and will begin shortly on William de Mille's production of "Noterlety."

Lyman Broening, A. S. C., has completed his work on "Tess" and "Garrison's Finish."

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Borderland	Harry Perry
The Broken Silence	Chas. Downs
The Young Diana	Harold Webster
The Angel Citizens	Not credited
The Mysteries of India	Not credited
Blood and Sand	Alvin Wyckoff
Fools First	David Keaton and Karl Struss
The Bonded Woman	Jos. C. Van Trees, member A. S. C. (Directed by Philip E. Rosen, member A. S. C.)
The Woman Who Came Back	Not credited
What's Wrong With The Women	George Folsay
Heart's Haven	Gus Peterson and Friend Baker
The New Teacher	Frank H. Good, member A. S. C.
The Hands of Nara	L. Wm. O'Connell
The Country Flapper	Fred Chaston
The Masquerader	George Benoit, member A. S. C.
Her Gilded Cage	Alfred Gilks, member A. S. C.
The Prince and the Pauper	Not credited
Don't Shoot	Virgil Miller, member A. S. C.
West of Chicago	Lucien Andriot
Pools of Fortune	Kang Gray, member A. S. C.
Just Tony	Dan Clark
Voices of the City	Not credited
Nice People	L. Guy Wilky, member A. S. C.
Moonshine Valley	Tom Malloy
The Loaded Door	Not Polito, member A. S. C.
Queen of the Moth House	Michael Joyce

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Evans, William—with Universal	Schneiderman, Chas. E.—with Lasky Studio
Evans, Ross G.	Schneiderman, George—with Fox Studio
Evans, Wm. C.	Scott, Homer A.—with Mack Sennett Productions, Bennett Studio
Evans, Harry M.—Joe Berk, Universal Studio	Seitz, John F.—with Rex Ingram, Metro Studio
Evans, Tom J.—with Joseph Schenck Productions, Joseph Schenck, Universal	Seitz, Allen—Ford Niles, Maxer Studio
Evans, A. L.—with Sam Woods, Gloria Swanson, Lasky Studio	Sharp, Henry—with Iver, Iver Studio
Evans, Frank R.—with Jackie Coogan, United Studio	Short, Don—with Fox Studio
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Evans, Roy H.—Director of Photography, Metro Studio	Warrenton, Gilbert—with Alvy Brady, Lasky, in New York
Evans, Ben H.—with Universal	Whitman, Philip H.—with Universal, Experimental Department
Evans, Lamp, Ross F.—with Larry Semon, Vitaphone Studio	Wilky, L. Guy—with William De Mille, Lasky Studio
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7200 SANTA MONICA BOULEVARD
HOLLYWOOD LOS ANGELES CAL.

August 1st, 1922.

Mitchell Camera Co.,
6019 Santa Monica Blvd.,
Hollywood, Calif.

Gentlemen:

Nothing but sheer appreciation prompts me to write you of my gratification of the Mitchell Camera, and I would feel a neglect of duty if I failed to do so.

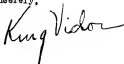
I have just completed my second production with the Mitchell, during which we put it to as severe a test as a camera is ever obliged to withstand. In manner of speed, accuracy and practicability, I assure you there is no equal.

A director experiences great mental relief when he knows that when the word "Camera" is given, in a flash the Mitchell is ready to go and the results are certain.

Up to the time of the Mitchell's inception on the market, motion picture cameras had not advanced with the industry, but from what I have seen of the Mitchell's performance to date, I am inclined to believe it is several steps ahead of present standards.

I will consider it a privilege to attest to the Mitchell's worthiness at any time.

Sincerely,

A handwritten signature in dark ink, reading "King Vidor". The signature is written in a cursive, flowing style. The first name "King" is written with a large, prominent "K" that loops around. The last name "Vidor" is written in a more straightforward cursive script. The signature is positioned below the word "Sincerely,".